may be affixed to the housing or other structure as desired. It will be recognized that one ramp may be used to move multiple texture elements and that the ramps may also be any suitable configuration (including shape or size).

[0047] The flexible skin structure **320** may be made out of any suitable flexible material including, but not limited to polyurethane, rubber, or silicone. It may be suitably attached to an outer portion of the housing of the device **300** via an adhesive or any other suitable mechanism. The flexible skin structure **320** as shown has a portion that covers the movable ramp structure **306**. When the movable ramp structure **306** pushes up the molded pockets **322**, it changes the tactile configuration of the controllable skin texture surface so a user will feel the locations below the ramps on the flexible skin structure **320**. As shown, there may be touch sensors **324**, shown as capacitive sensors positioned on the ramp structure **306** at locations between the ramps if desired, or on top of the ramps if desired which when touched by a user, generate a signal that is interpreted by the control logic of the device **300** to be an activation of a key, in this particular example. It will be recognized that touch sensors **324** may be any suitable sensor and may be located at any suitable location within the device as desired. The texture pockets **322** may be, for example, thinned out sections that are molded into a rear surface of the flexible skin structure **320**. However, any suitable configuration may be used. In this example, the flexible skin structure **320** includes a layer of flexible material that have a plurality of defined changeable skin texture elements **322**, each having a portion configured to engage with the movable ramp structure **306**. The capacitive sensor serves as a type touch sensor **324**.

[0048] FIG. **4** illustrates an alternative embodiment to the single plate shown in FIG. **3**. In this example, a multiple segment movable ramp structure **308** includes a plurality of ramps **402**, **404**, **406** and a cam structure **408** that mechanically engages with, for example, edges of the plurality of ramps to move at least one of the plurality of ramps in response to, in one example, mechanical movement of a portion of the device. For example, if the device has a clam type housing design, movement of the clam housing causes rotation of the rotating cam **408** through a suitable mechanical linkage. Alternatively, a motor may be controlled to actuate the movement of the plurality of ramps **402**, **404**, **406** directly or indirectly through rotating the cam **408**. For example, a motor may be coupled to rotate the cam **408** based on an electrical control signal from control logic.

[0049] As shown, the ramp structure **308** includes a plurality of individual sliding ramp elements **402**, **404** and **406** each including a plurality of ramps **310**. As also shown, the cam structure **408** which is shown to move in a rotational manner, may also be structured to move in a non-rotational manner, such as a sliding manner if desired, or any other suitable manner. The cam structure includes ramp control elements **410** that, in this example, protrude from the cam structure to engage an edge of each of the respective individual sliding ramp elements **402**, **404** and **406**. The ramp control elements **410** are positioned to cause movement of the plurality of sliding ramp elements in response to movement of the cam structure **408**. Actuation of the plurality of sliding ramp elements **402-406** may be done in response to the information set forth above such as based on a received wireless signal, battery level change condition, such as a recharge condition (actuate skin), low battery level (deactuate skin), an incoming call, or based on any other suitable condition. As such, a series of individual sliding panels are located beneath a flexible skin structure **320** and are actuated in this example by a cam structure. The pattern of ramp control elements **410** determine in what sequence the sliding panels are actuated. As noted, the cam structure can be driven by a motor or integrated into the device such that a hinge of a clam shell type device that may be found, for example, on a mobile handset may actuate the cam directly so that opening of the clam shell causes the raising of the portions of the flexible skin texture to represent a keypad. It will also be recognized that the mechanical actuation structure described may move any portion of the flexible skin structure **320** to provide, for example, raised portions that are not associated with a user interface and may be moved to provide any desired tactile configuration.

[0050] FIG. **5** shows a cross sectional view of a controllable skin texture surface **500** similar to that shown in FIG. **4** but in this example, the flexible skin structure **320** may also include tabs **502** that are integrally formed with the texture pockets **322** to assist in raising the center of the texture pockets **322**, if desired. As also shown, the flexible skin structure **320** is also considered to include a plate structure **504** that includes openings **506** corresponding to each desired texture element. The openings **506** receive the tabs **502** configured to engage with the movable ramp structure **308**. As shown, as the movable ramp structure **308** is moved, it raises or lowers portions of the flexible skin structure **320** in response to movement of the cam structure **408**. In this example, the individual sliding elements **402** and **406** have been moved to raise portions of the flexible skin structure **320** whereas individual sliding element **404** has not been moved and therefore the flexible skin structure is flat at the appropriate locations. As previously noted above, if the device includes a movable housing portion such as a clam shell configuration or any other suitable configuration, the movable housing portion may be mechanically coupled to the cam structure **408** such that mechanical movement of the housing portion causes movement of the cam structure. Alternatively, the cam structure may be electronically controlled independent of any movable housing portion as desired. For example, a motor may be coupled to engage with the cam structure and move the cam structure in response to an electronic control signal to move one or more of the plurality of ramps to a desired location.

[0051] As described, the sliding movable ramp structure **308**, **404-406** with wedge shaped features (e.g., ramps) moves horizontally to force tabs (e.g., pins) molded into the back of the flexible skin structure upwardly and thereby causes portions of the flexible skin structure corresponding to the texture pockets to be raised and thereby create a desired texture pattern. As noted above, a touch sensor, such as a capacitive sensor, may also be used to detect the touch of a user's finger against the flexible skin structure. The sensing may be used as an input to actuate the texture mechanism or to execute another function that would correspond to the press of a button. In addition, mechanical switches such as dome-type switches known in the art could be placed underneath portions of the movable ramp structure to allow a user to press and thereby actuate one or more of the switches.

[0052] FIGS. **6** and **7** illustrate another example of a mechanical actuation structure that uses a movable ramp structure and flexible skin structure. In this example, the tabs **502** (FIG. **5**) need not be utilized. Instead, a wedge shaped element **600** includes an anchored portion **602** and a movable wedge section **604** that pivots with respect to the anchored